

OCT 17 1918

SIGMA XI QUARTERLY

Vol. VI

MARCH, 1918

No. 1



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Published by the Society of the Sigma Xi

ANNUAL SUBSCRIPTION 50 CENTS SINGLE NUMBER 15 CENTS

Changes of address should be communicated only to chapter secretaries.
Subscriptions and manuscripts should be sent to the general secretary, Henry B. Ward, Urbana, Illinois.

Entered as second-class matter July 21, 1915, at the postoffice at Menasha, Wis., under Act of August 24, 1912.

SIGMA XI QUARTERLY

EDITORIAL COMMITTEE

Floyd Karker Richtmyer Edwin Emery Slosson
Henry Baldwin Ward

VOL. VI

MARCH, 1918

NO. I

NOTICE

Sigma Xi Associate Membership certificates and Associate Membership index cards, the latter in blue, can now be obtained from the office of the secretary.

These certificates and cards are furnished on the same conditions and rates as apply to the regular membership certificates and cards.

The contract has been let for a supply of Associate Membership pins which can be secured by chapter secretaries only. In accordance with the general instructions of the Convention and specific vote of the Executive Committee they are always sent out engraved for specific persons, and only on prepayment of amounts due. Blanks for orders have been sent to Chapter Secretaries.

EDITORIAL

In one respect the Pittsburgh Convention would seem to have been somewhat inferior to other recent conventions, namely in the number of chapters represented. Just a little more than fifty per cent of the chapters took part in the business of the day. National conditions at present are given as an adequate explanation of this situation. On the other hand, it may justly be said that no recent convention has been marked by such intensity and earnestness of discussion, accompanied at the same time by the best of feeling and by an ultimate decision in the case of disputed matters that seemed to meet with the approval of all parties.

The local committee which was appointed by President Stieglitz on November 21, 1917, consisted originally of the following members:

Doctor R. F. Bacon, Mellon Institute (Chicago).

Doctor F. L. Bishop, University of Pittsburgh (Chicago).

Doctor C. C. Guthrie, University of Pittsburgh (Chicago).

Doctor O. E. Jennings, University of Pittsburgh (Ohio).

Doctor L. E. Griffin, University of Pittsburgh (Minnesota).

President Stieglitz had originally designated Doctor R. F. Bacon as chairman, but before he could enter upon the duties of the office, he was called and responded to the opportunity for entering upon the service of the Country. The duties of the position were then taken up by Doctor F. L. Bishop and he in turn was called away for national service before the day of the convention arrived.

Professor L. E. Griffin then voluntarily undertook to follow up the situation and was unceasing in his efforts to care for the convention in every way. The thanks of the society are certainly due to the members of the local committee for their services under these difficult conditions.

The meeting place in the Mellon Institute assigned to Sigma Xi was well adapted to its purpose and it was eminently appropriate that a society devoted to research should be privileged to meet in an institute which has achieved such remarkable results in that field.

To Chancellor McCormick and to the University of Pittsburgh in general the society is indebted for its welcome and for the measures taken to insure its comfort and convenience.

The annual dinner which was held at the University Club through the courtesy of that organization overflowed the dining-room originally set aside for it, filled up a smaller dining-room adjacent and even spread out ultimately and took in a couple of tables in the main dining-room of the club. If it were possible for members to acquire the habit of announcing at an early date the likelihood of their attendance upon these functions, it would be practicable to make better provisions for them. The steward planned for more places than had been originally engaged, but was greeted by the appearance of twenty-five per cent more persons even than he had planned for. Such conditions are very trying for those who have to provide for the entertainment. They make it difficult also both for those who have engaged places and for those who have not, to get proper service and to enjoy themselves. The service rendered was admirable, and Sigma Xi is deeply indebted to the University Club for the courtesies extended its members.

PROCEEDINGS OF THE NINETEENTH CONVENTION OF THE SOCIETY OF THE SIGMA XI

PITTSBURGH, PENNSYLVANIA, DECEMBER 29, 1917

The Convention was called to order in the lecture hall of the Mellon Institute at 2:15 P. M. by President Julius Stieglitz.

As the Committee on Credentials, the President appointed C. H. Eigenman (Indiana), Chairman, Edward Ellery (Union), and J. N. Pearce (Iowa).

After reviewing the credentials presented the committee submitted the following report:

The following members have presented credentials as delegates of their respective chapters to the Convention of the Society of Sigma Xi, held December 29, 1917, in the Mellon Institute, Pittsburgh, Pennsylvania:

<i>Delegates</i>	<i>Chapter</i>
R. C. Osborn	Ohio
C. L. Metcalf	Ohio
A. R. Weiss	Ohio
C. H. Abbott	Brown
Edward Ellery	Union
W. A. Noyes	Illinois
S. I. Kornhauser	Northwestern
H. A. Bumstead	Yale
W. H. T. Holden	Yale
J. N. Pearce	Iowa
H. L. Dodge	Iowa
Max F. Meyer	Missouri
C. H. Richardson	Syracuse
W. M. Smallwood	Syracuse
C. H. Eigenmann	Indiana
W. J. Moenkhaus	Indiana
E. L. Nichols	Cornell
M. H. Swenk	Nebraska
H. L. Trumbell	University of Washington
R. E. Rose	University of Washington

Marc Darrin
F. C. Dockeray
Leon J. Cole

University of Washington
Kansas
Wisconsin
C. H. EIGENMANN,
J. N. PEARCE,
EDWARD ELLERY,
Committee.

Fifteen of the thirty chapters in the Society were thus represented at the session. After its close credentials were handed the Secretary for the following persons, who, however, were not present during the session.

Delegates

B. M. Duggar
F. C. Newcombe
H. H. Bartlett

Chapter

Washington University
Michigan
Michigan

In addition to regularly accredited delegates there were present on the floor of the Convention the following members of the Society:

<i>Name</i>	<i>Chapter</i>	<i>Address</i>
T. W. Galloway	Illinois	Beloit, Wis.
Robert Retzer	Minnesota	Pittsburgh, Pa.
C. C. Vogt	Ohio State	Pittsburgh, Pa.
L. E. Griffin	Minnesota	Pittsburgh, Pa.
H. C. P. Weber	Illinois	Pittsburgh, Pa.

The minutes of the last Convention, held at Columbia University, New York City, on December 27, 1916, were presented in printed form as prepared by F. K. Richtmyer (Cornell), Secretary *pro tem*, of that convention and published in the *QUARTERLY* for March, 1917. Attention was called to an item concerning the policy of the Society printed on page 73 of the September, 1916, *QUARTERLY*, as follows:

President Howe reported to the Committee that he had been in receipt of communications from many institutions inquiring into the possibility of securing membership in Sigma Xi and suggested that the time was ripe for making more precise specifications of the conditions under which the Executive Committee would look favorably upon applications for membership and endeavor to secure for the applicants favorable action by the convention. After very extended discussion, President Howe was requested to formulate the conditions which had been the subject of discussion. This was done, and the report of the President, which was approved, reads thus:

The following conditions should hold in any institution if the Executive Committee is to make a favorable report upon an application for a charter:

1. The authorities of the college or university, i. e., the trustees and the president, should be favorably disposed toward research.
2. There should be apparatus and facilities available for research.
3. The members of the faculty who sign the petition should be men who have had adequate training for research.
4. There should have been a continuous output of research from the institution for a number of years preceding the application for a charter.
5. There should be appropriations for research, or at least a certain amount of the appropriations made to the scientific department should be available for apparatus for research.

The Executive Committee believes that unless these conditions hold in an institution, it cannot worthily represent the aims of the Sigma Xi and will not in the future devote such a part of its energies to research as to make it a credit to the society.

No reference to this item establishing a policy with regard to the location of new chapters, is to be found in the published minutes of the New York Convention as printed in the *QUARTERLY* for March, 1917. This omission was officially noted at the meeting of the Executive Committee held in May (see *QUARTERLY*, page 82, September, 1917); and its presentation to the next Convention ordered as a correction to the Convention minutes as printed.

On formal motion the convention voted to insert the item in the minutes of the 1916 Convention and to reiterate the view that the policy outlined is distinctly desirable for the Society and should be kept prominently in mind by the Executive Committee when an application for a new charter is under consideration.

The report of the Secretary concerning the work of his office and the growth of the Society during the past year was received and ordered printed with the minutes of the Convention (see page 16 of this issue).

The report of the Treasurer was not received owing to delayed postal service; it was referred to an auditing committee consisting of Edward Ellery (Union) and C. E. McClung (Pennsylvania) and ordered printed as audited (see page 24 of this issue).

The President announced that chapter reports would be deferred as usual to the close of the dinner in the evening. (Owing to circumstances they were omitted then also; see page 16).

The Convention then took up the Report of the Executive Committee meeting held last May as printed in the *QUARTERLY* for September, page 81. In the absence of members of the Executive Committee, save the convention officers, the report was presented to

the house by Ex-President E. L. Nichols (Cornell). President Stieglitz explained carefully the proposed new basis for the granting of charters which was outlined in the records of the Executive Committee as follows:

MEMBERSHIP

The question of associate membership was taken up first and discussed very fully. At the conclusion of the discussion it was voted that:

The Executive Committee requests approval of the following basis for recommendations for the granting of charters for new chapters:

1. It may recommend the granting of a charter as in the past without any limitation on the chapter to use its own option as to electing undergraduates to full membership or associate membership.

2. It may recommend the granting of a charter, with the limiting provision that the chapter shall elect undergraduates to associate membership only, until such time as the limitation is removed on recommendation of the Executive Committee by a two-thirds vote of the Convention.

After discussion concerning the extent to which under the conditions outlined in the first resolution adopted by this meeting membership might be granted to institutions of various types, it was voted as follows:

In case provision is made restricting the election of undergraduate members to associate membership, it is further recommended that the policy of the Society shall be to extend the granting of new chapters to all institutions of at least collegiate grade in which there is a scientific faculty of productive research members.

After discussion the Convention voted unanimously to recommend to the next convention the adoption of this provision as an amendment to the Constitution. It will become apparently Sec. 6 of Article III.

The report of the Executive Committee recommended a slight amendment to the constitutional provisions governing the election of associate members; the change was set forth in the September QUARTERLY, page 83-84 as follows:

With reference to associate membership, the attention of the Committee was directed to the fact that the conditions as set forth in the QUARTERLY for March, 1917, page 23, do not work out well in practice. The rule reads at present:

Sec. 7. When a chapter elects to have associate members, the following and no other shall be eligible to associate membership in that chapter:

- a. Any graduate student who has shown marked excellence in two or more departments of pure or applied science.

- b. Any undergraduate student who has completed the required work of the first three years and who has shown marked excellence in two or more departments of pure or applied science.

The stipulations as they now stand exclude the consideration of concentrated work for the Master's degree, which may be really of higher type than much of that which would be entitled to consideration under the present reading of the rule. Furthermore, the practices of different institutions with reference to the precise limits of departments vary very greatly, and fields of work which are rated as separate departments in many institutions are actually included as subordinate parts of a single department in other institutions.

Accordingly, it was voted to recommend that the first clause (a) which concerns graduate students read "one or more departments."

After discussion the Convention voted unanimously to recommend to the next convention the adoption of the change in the wording of Section 7, so that it shall read in part as follows:

(a) Any graduate student who has shown marked excellence in one or more departments of pure or applied science.

The question of the insignia for associate members was then taken up for discussion, and the printed record of the Executive Committee meeting dealing with this item was presented to the Convention.

This involved reconsideration of an amendment discussed at the last Convention and now recommended again by the Executive Committee. This reconsideration was unanimously agreed to and on motion to adopt the amendment the plans was discussed *in extenso* from various aspects.

In connection with the question of a badge for Associate Members, the following extracts from letters received were read:

The majority of our members are in favor of having some sort of pin, or other means of distinguishing associate members. The students I am sure would want it.
(From the California Chapter)

I must not close this letter without expressing the earnest wish that something will be done about the badges for associate members. With our chapter the initiation of undergraduate members is one of the important events in the college year and we feel that our associate members should have something to show as a proof of their election.

C. H. BENJAMIN,
Purdue Chapter.

An amendment proposing to make the use and granting of the badge optional with individual chapters was agreed to by unanimous vote, and the amendment as thus modified was voted upon by chapters with the following results:

Ohio	Not voting
Brown	Yes
Union	Yes
Illinois	Yes
Northwestern	Yes
Yale	Yes
Iowa	Yes
Missouri	Yes
Syracuse	{One-half Yes One-half No
Indiana	Yes
Cornell	Yes
Nebraska	Yes
University of Washington	Yes
Kansas	Yes
Wisconsin	No

The amendment to the Constitution was then declared adopted as follows.

Amend Article VI Sec. 1 by inserting the following paragraph:

(b) The badge or symbol to be worn by associate members shall be a pin having the Greek letters Sigma and Xi in white on an electric blue ground. On the reverse shall be the associate member's name, name of the institution, and the date of election. The use and granting of such badge shall be optional with the several chapters.

The report of the sub-committee of three, consisting of Messrs. F. K. Richtmyer (Cornell), C. E. McClung (Pennsylvania), and G. B. Pegram (Columbia), appointed to prepare and submit a design for consideration was then read as follows:

Sigma Xi Society

REPORT OF THE COMMITTEE APPOINTED TO SUBMIT A BADGE FOR ASSOCIATE MEMBERS

The Committee appointed by the Council at its May (1917) meeting, begs to submit the following report:

A badge for Associate members should have two characteristics:

1. It should be sufficiently distinct from the "key" or pin for regular members as to render confusion of the two impossible.
2. It should be reasonable in cost.

It is thought that the designs herewith submitted meet these two qualifications.

The two designs are similar except as to relative dimensions. Design number 1 is a rectangular pin, 8 mm. by 20.5 mm. (0.31 in. by 0.81 in.).

Within a beveled edge of gold is a blue enameled field approximately 6 mm. by 16 mm. on which appear in white enamel the two Greek letters Sigma and Xi. On the back may be engraved the owner's name, chapter, and date of election. It is to be fitted with a jeweler's catch pin with safety lock if desired.

Design number 2 is similar except that it is smaller. The outside dimensions being 7.5 mm. x 13 mm. (approximately 0.3 x 0.5 inches) and the inside field being about 5 mm. by 11 mm.

The price in solid gold, exclusive of engraving or safety catch, will be between \$1.25 and \$1.50.*

The Committee recommends the adoption of Design number 2.

Respectfully submitted,

C. E. McCLUNG,

G. B. PEGRAM,

F. K. RICHTMYER, *Chairman.*

After inspection of the forms presented, the badge designated "2" was on motion unanimously approved and adopted.

It was then on motion voted that the Secretary be instructed to make a contract for securing an adequate supply of these badges which shall be ordered by the various chapters through his office only, to the end that uniformity should be secured, the use of the badge be kept under the control of the Society, and expense be reduced to the lowest possible figure.

The Convention next considered the recommendations of the Executive Committee with reference to the QUARTERLY. These recommendations were printed in full in the September, 1917, QUARTERLY, pages 85-87. Professor Nichols reported the specific recommendation of the Executive Committee that the QUARTERLY should be continued primarily as a journal of record and a means of communication between the chapters and that each chapter should publish a list of elections to membership together with a statement of the qualifications of the members elected.

The California Chapter reported formally that at a recent meeting a letter from the Wisconsin Chapter, giving reasons for discontinuing the QUARTERLY, was read and discussed. It was voted that the California Chapter reaffirm its opinion as expressed at the April meeting of the chapter, viz.: "that the QUARTERLY is valuable as an administration bulletin, keeping the members of the various chapters, and especially the officers, informed as to other chapters. Its scope is too limited to be other than a medium for publication of original records and it should be limited to brief

* The prices now are somewhat higher.

notes relating to other chapters, reports of conventions, and similar matters."

An official letter read by the Secretary stated that the Ohio Chapter voted to instruct its delegates on only one point, and that was to vote to continue the SIGMA XI QUARTERLY.

There was presented also a recent letter from Dean C. H. Benjamin of Purdue, as follows:

"I feel quite strongly in regard to this and can not refrain from writing you. If Sigma Xi is ever to be anything more than a loosely connected aggregation of local societies it must have a national publication of some sort. Comparatively few of the members ever have an opportunity of attending the conventions and the QUARTERLY is the only source of information or avenue of communication for them. If it is not all that it should be, the fault is with us, the members of the organization who do not contribute to it or give it any assistance. For myself, I read it with interest as it comes out and appreciate very much the information which it gives concerning Society matters throughout the country.

"Possibly at present it must remain a quarterly but I should certainly be glad to see it grow into a monthly publication of perhaps nine or ten numbers. If the officers of each chapter would endeavor to send some contribution at least twice a year, including Society notes, discussions on the policies of the organization, and short papers or addresses, the magazine would soon become an important force. I feel that rather than criticize it for what it lacks, we should as loyal members of the Society try to supply material for a scientific publication of a high order."

In the course of an extended discussion numerous specific suggestions were made with regard to the extension, modification, and limitations of the QUARTERLY, the relative cost and value of an individual annual publication and one appearing oftener. In this connection the opinions of the various individuals and chapters as expressed in personal discussion and in writing, were presented. At the conclusion of this discussion it was voted to approve the recommendation of the Executive Committee and to refer to that committee for consideration the possibility and advisability of reducing or increasing the size of the QUARTERLY. The officers and other members of the Convention expressed the urgent desire that chapters and individuals should aid in the conduct of the publication and

in the organization of the Society by furnishing freely all kinds of constructive criticism with regard to this and other features of the organization of the Society.

The question of establishing Sigma Xi Fellowships in accordance with the suggestion of President Stieglitz as presented to the Executive Committee at the spring meeting was then opened. This scheme was discussed and approved at that time, as shown by the record on page 89 of the *QUARTERLY* for September, 1917; the plan was fully outlined in an article by President Stieglitz in the *QUARTERLY* for June, 1917, and was also referred to editorially in the *QUARTERLY* for September, 1917. Various members of the convention spoke in favor of the proposition which was generally and enthusiastically commended by those present. It was even referred to as the most distinctive project in furtherance of the aims of the Society for the encouragement of research that has been proposed in all of the history of the Sigma Xi Society. At the close of the discussion, it was voted that the Executive Committee be authorized and urged to raise funds to provide for such fellowships. Power to adjust details as to number and amount of such fellowships was delegated to the Executive Committee, but in the discussion it was suggested that three fellowships of one thousand dollars each would be appropriate and in no event should the minimum stipend for such a position be less than seven hundred and fifty dollars.

The Committee on Uniformity of Badges for regular members submitted a report of progress as follows:

Sigma Xi Society

REPORT OF COMMITTEE ON UNIFORMITY OF BADGE FOR REGULAR MEMBERS

The Committee, appointed by the Council at its May (1917) meeting and charged with investigating and reporting upon the question of securing uniformity in design and source of supply of keys for regular members, begs to report as follows:

This investigation has two objects:

First, it is hoped that by centralizing the source of supply keys can be furnished to the several chapters (through local jewelers if desired) at a material reduction in cost.

Second, if such centralization can be effected it will be possible to have the keys manufactured under the direction of the National Society and thereby secure greater uniformity in, and closer adherence to, the official designs.

Various circumstances have made it impossible to progress far enough with this investigation to make a report at this time. The Committee asks to be continued and that if time permits, the Convention discuss the general question, in order that, in preparing the final report at some subsequent date, the attitude of the Society may be known.

Respectfully submitted,

C. E. McCLUNG,

F. K. RICHTMYER, *Chairman.*

The report was received and ordered printed and the committee instructed to continue its work. In connection with the discussion evidence was submitted to show that the emblem of the Society was not protected in adequate fashion and that it was open to purchase and use by unauthorized parties. At the conclusion of the discussion it was voted that the Executive Committee be asked to consider carefully the best method of purchasing and protecting the insignia of Sigma Xi. It was further voted that in the opinion of the Convention and for the best interests of all members of the Society unification in type and monopoly in distribution seemed advisable.

On motion the Convention voted unanimously a pro-rata annual assessment of fifty cents per active member in each chapter.

The Convention discussed the general organization of the Society and opinions were expressed that the various chapters were not sufficiently familiar with the work done in other localities for the best interests of the organization as a whole or of the individual parts. At the close of the discussion, it was voted that the Executive Committee be requested to take into consideration the suggestions that had been made and to submit recommendations looking towards a unification of the chapters with the view to more vigorous and successful coöperation of all chapters in the Society for the achievement of its ideals.

E. L. Nichols, chairman of the Nominating Committee, submitted the recommendations that C. H. Eigenmann (Indiana) be selected to fill the unexpired term of Edward Orton, Jr. (Ohio), resigned, and Edward Ellery (Union) to take the place of Dexter S. Kimball (Cornell), retired.

The President presented a request for the support of the Sigma Xi Society in the movement connected with the Patent Office for a proposed Institute for the History of Science to be established at the National Capital. The President recommended that inasmuch as the National Council of Research has a committee which is mak-

ing a careful study of the whole patent situation and as the Sigma Xi Society has no opportunity to investigate the situation at first hand exhaustively, the Council confine itself to voting to approve any action which the committee of the National Research Council on full investigation would recommend.

This recommendation of the President was approved and it was voted to notify the Committee of the National Research Council of the support of the Sigma Xi Society in any recommendations concerning the question at issue which it may decide to make.

THE CONVENTION DINNER

The annual dinner of the Society was held at the University Club on December 29, 1917, at 7 P. M. The following were present:

<i>Name</i>	<i>Chapter</i>
Aldrich, J. M.	Purdue
Appleman, Chas. O.	Chicago
Ball, E. D.	Wisconsin
Bartlett, H. H.	Michigan
Bentley, G. M.	Cornell
Brown, S. L.	Texas
Cameron, A. E.	(guest)
Cobb, Margaret V.	Illinois
Cole, L. J.	Wisconsin
Darrin, Marc	Wisconsin
Dickerson, Roy E.	California
Dockeray, F. C.	Kansas
Dodge, H. L.	Iowa
Duggar, B. M.	Washington University
Dyche, H. E.	Ohio
Ehlers, J. H.	Michigan
Eigenmann, C. H.	Indiana
Ellery, Edward	Union
Endsley, L. E.	Purdue
Fairchild, H. L.	Cornell
Farr, C. H.	Iowa
Gager, C. Stuart	Cornell
Gatewood, Esther	(guest)
Gordon, C. E.	Columbia
Gordon, C. H.	Nebraska
Gordon, Kate	Chicago
Griffin, L. E.	Minnesota
Hadwen, L.	(guest)
Hine, James S.	Ohio
Holman, R. M.	California
Hower, H. S.	Case
Hunter, S. J.	Kansas
Jennings, O. E.	Ohio
Kahl, Hugo	Kansas

<i>Name</i>	<i>Chapter</i>
Kellogg, Vernon	Stanford
Kislink, Max, Jr.	Ohio
Kohman, H. A.	Iota
Kornhauser, S. I.	Northwestern
Kreisinger, Henry	Illinois
Lincoln, P. M.	Ohio
Lloyd, M. G.	Pennsylvania
McDowell, Louise S.	Cornell
Merriam, J. C.	California
Miller, R.	(guest)
Miner, J. B.	Columbia
Mott, William E.	Cornell
Newcombe, F. C.	Michigan
Nichols, Edward L.	Cornell
Nichols, Mrs. E. L.	(guest)
Noyes, W. A.	Illinois
Osborn, Herbert	Ohio
Patton, Leroy	Iowa
Plough, H. H.	Columbia
Pratt, Henry S.	Chicago
Ransom, B. H.	Nebraska
Retzer, Robert	Minnesota
Richardson, Charles H.	Syracuse
Ruggles, A. G.	Minnesota
Salisbury, Rollin D.	(guest)
Scholes, S. R.	Yale
Smallwood, W. M.	Syracuse
Stieglitz, J.	Chicago
Swenk, Myron H.	Nebraska
Tillotson, E. Ward	Yale
Van Hise, Charles R.	Wisconsin
Vogt, C. C.	Ohio
Vogt, Mrs. C. C.	Ohio
Walton, L. B.	Alpha
Ward, Henry B.	Illinois
Warner, T.	District of Columbia
Weber, H. C. P.	Illinois
Weiss, A. P.	Ohio

<i>Name</i>	<i>Chapter</i>
Weiss, Mrs. A. P.	(guest)
Wenrich, C. N.	Pennsylvania
Williston, S. W.	Chicago
Woodworth, C. M.	Wisconsin

In opening the after-dinner discussion, President Stieglitz suggested that, in view of the presence of a number of distinguished visitors and the importance of discussing the situation confronting the country, it seemed appropriate to omit the customary Chapter reports which in accordance with the request of the Executive Committee should be printed in the *QUARTERLY* in any event, and to proceed at once to a discussion of the problems before the Society in the near future. He presented as the first of those problems, the importance of organizing the nation so that the maximum use can be made of those who are fitted to carry on scientific work. At this time a resolution was presented, expressing the views of the Sigma Xi Society that in the conduct of scientific work those men who had received specific technical training should be assigned to their appropriate posts, even tho, in the processes of the draft, they may have been drawn into service in the line. The motion was adopted.

President Stieglitz emphasized the importance of the most thorough training of scientific men, that there might be a supply of experts ready to meet the constantly increasing needs of the country in connection with war work. He made finally an appeal for the consideration and furtherance of a plan to provide, under the auspices of the Sigma Xi Society, certain strictly research fellowships, in accordance with the plan presented and approved by the Committee last spring, presented to the chapters in the fall, and voted upon favorably by the Convention that afternoon.

President C. R. Van Hise, of the University of Wisconsin, spoke next on the relations to draft of technically trained men, and the variety and complex character of the work demanded at the present time. Since President Stieglitz had to leave in order to meet certain demands in the scientific service of the government, ex-President E. L. Nichols was called to the chair and spoke earnestly on the need for maintaining the life and activity of scientific laboratories and institutes in every field. He urged all members as part of their loyal duty to the country that they should, at every sacrifice,

strive to maintain at the highest point of efficiency, scientific work and scientific organizations. He pointed out not as a direct or an immediate, but as a no less real and far-reaching danger, that the end of the struggle might find us victorious, yet with the scientific organization of the past broken down or destroyed and the country, consequently, unable to utilize for the welfare of democracy the victory which had been won.

Professor H. L. Fairchild (Cornell) speaking next, called especial attention to the fact that the world needs to keep level headed, and that scientific men must take and hold the lead in achieving the goal under conditions that will make possible a richer and fuller life in the future.

Professor W. A. Noyes (Illinois) further emphasized the importance of maintaining scientific work and seeking constantly the development of human knowledge, and that not chiefly for the material advantage attained. He dwelt particularly on the thought that equal privilege in the fullest sense was our goal, and not equality of distribution.

Professor S. W. Williston (Chicago) pointed out forcefully that it was the mission of Sigma Xi to serve science and scientific education. For the accomplishment of this end, the paramount need in the Society was for more complete knowledge of the work done in other circles, and for closer and more effective cooperation between the chapters. He pointed out that the students in European universities had already disappeared from the scene, and that even after the close of the war it would be a long time before others would be ready to take the effective places. He urged the membership of Sigma Xi to find its great work in striving to help this country escape such a condition.

At the conclusion of the dinner, it was voted to leave the place of the next meeting in the hands of the Executive Committee, as well as to empower them to omit such meeting should conditions seem unfavorable for it. However, the thought was distinctly expressed, both in the speeches briefly outlined and in the discussions, that Sigma Xi had a great opportunity and an equal responsibility to work for the development of scientific training, and the maintenance and further utilization of scientific organizations in this period of national stress and strain.

REPORT OF THE SECRETARY

Since the question of the *QUARTERLY* is to be definitely reviewed and passed upon by this Convention, it is appropriate for me to present briefly a record of the undertaking from its inception. Ex-President S. W. Williston was the first to urge upon Sigma Xi the need of a medium of communication between the chapters, and in public and private repeatedly advocated the establishment of a periodical publication. As chairman of the Council, Prof. E. L. Nichols in 1903 wrote every chapter, asking support for such an organ. The New York Convention discussed it in 1906; and later conventions carried on the discussion until finally in 1913 the Cleveland Convention took definite action establishing the *QUARTERLY*.

The plan of the publication has been modified in various ways during the past five years, and as a result of the different experiments and discussions the Executive Committee last May voted to adopt the following general plan for the annual series of four numbers, the sequence being naturally subject to modification with changing circumstances:

1. Official record of the Annual Convention and matters pertaining thereto.
2. Current history of the Society, especially annual reports of chapters.
3. Official record of the Executive Committee meeting and matters presented by it for the consideration of the Society at large.
4. Proposals for action at the Annual Convention, discussions thereof, and annual statistical summary of membership.

In addition each number is to include also such other available material as reports, news items, and notices of particular celebrations in various chapters, with special discussions and briefer papers on the Society, its policy and history. But the material was to be limited to that specifically related to the Society of the Sigma Xi and its work. In brief, to quote the record of the action taken by the Executive Committee, it was voted to recommend the continuance of the *QUARTERLY* primarily as a journal of record and means of communication between the chapters.

The work of the past five years shows that the publication has not found a demand in the Society for service in the rôle of a news journal. Special efforts have been made at various times by different

officers of Sigma Xi to emphasize this function for the QUARTERLY and to secure news items from the chapters. President Howe even organized a special group of reporters, one from each chapter, to furnish current items of interest from that chapter; but almost nothing was sent in. Apparently the members feel that other periodicals can discharge this function better, and accordingly it may be given over to them.

Others have urged that the QUARTERLY assume for the Society the function of a scientific journal and seek to encourage research by the publication of reports covering the definite researches conducted by members or presented before chapter meetings. Apart from the evident difficulties of getting such material in proper form for publication and providing space to print the large amount of it that might be offered under such a plan, it may be urged that the material which is presented tentatively for the sake of the discussion that it will arouse, ought not to be published; and that which is final finds place in event of its being valuable in technical journals of the field to which it belongs. To duplicate such printing either before or after is at least a doubtful means of encouraging research, and in the opinion of many, deserving of severe criticism as troublesome and wasteful. Furthermore, in this rôle the QUARTERLY would at best be competing with numerous other scientific journals already well established and would merit some of the criticism recently passed upon it. (See QUARTERLY for December, 1917, page 125.)

There is, however, one function that the QUARTERLY has attempted to discharge from its inception, and that has been mentioned prominently in every proposal for the establishment of such a journal, as well as in every recommendation of any official body concerning it. It is the function emphasized in the recommendation of the Executive Committee and now before this Convention, and may be tersely put in the statement that the QUARTERLY is the journal of record for the Society of the Sigma Xi.

The Society is served by officers who in most chapters remain in office but a short time; the records are kept in a variety of ways and often go astray, so that it is in some cases impossible to secure a list of members elected, while dates of election, type of membership, and basis for election are much more uncertain. The Secretary's office has more than once received letters stating that the writer was a member of the Society in a given chapter when in-

quiry failed to elicit evidence of the fact from the chapter records. In every case it has been possible to establish the fact by other evidence, but such defects in the record are unfortunate. The influence of Sigma Xi is growing and membership is becoming yearly more highly prized. It is certainly incumbent on the Society to protect its membership against doubt as to their own standing and possible imposition by unworthy outsiders.

There is no need to emphasize here the effect of growth upon the organization of Sigma Xi, since this factor has been discussed many times in recent conventions and in published articles. Chapters scattered so widely naturally lack means of contact. They are apt to develop special methods and thus gradually grow apart from other sections of the organization. It is imperative that each chapter learn of the practices in other chapters, and that, for efficient service, the Society develop along reasonably uniform lines. This is not in any sense the suppression of individuality. It is, however, the careful selection of the best methods and their general application, with due allowance for local differences. The Society needs to know what is being done in every section of its membership, and such knowledge can best be obtained through a centralizing agency, like our official publication.

PRESENT MEMBERSHIP OF SIGMA XI

In the December (1917) number of the *QUARTERLY* was published a summary of membership statistics. The secretary desires to express his thanks to the various chapter secretaries for their promptness in responding to the request for data. This year only three chapters, Brown, Michigan, and Texas, failed to furnish data for the record.

From an inspection of the total it appears that from the chapters reporting during 1917 in all 803 new members were admitted to the Society. From the chapter reports these were distributed as follows:

Undergraduates	206
Graduate Students	348
Faculty	120
Alumni	39

Adding this total to the previous records it appears that the membership of the society has reached 10,715. This figure, however, is

too low because every year some chapters fail to report and the office is constantly in receipt of information concerning persons who desire to be recorded on the rolls and who have learned in one way or another that no return of their election has been made.

Cornell still remains the largest chapter with a total membership of 1371. Yale follows with 828; then come Pennsylvania with 748 and Illinois with 707 members. Minnesota, Ohio, Columbia, Chicago each have a membership of approximately 500 members; Rensselaer, Kansas, Nebraska, Iowa, Stanford, and Wisconsin count their total membership at a little over 300. Union, Case, and Missouri have passed a total of 200 members each. Indiana, Colorado, Northwestern, Syracuse, University of Washington, Purdue, Washington University, and District of Columbia Alumni Chapter have between 100 and 200 members each.

These figures do not depart much from the relative position of the institutions with reference to attendance and where they do the departure is determined by the relative age of the chapter. It is worthy of note that these chapters are probably the largest individual organizations in the institutions mentioned which are bound together by distinctly personal ties. One must recognize the splendid influence and the power for efficient work and right development which an organization with such a membership can exercise in the institution of university rank. The influence of individual chapters is steadily growing, year by year, with the success of the work undertaken and the increase in the sum total of productive scholarship displayed by the chapter. The active chapters constitute bodies large enough in membership and influential enough in personnel to be important factors in the every day life of their respective institutions. Cornell leads all the rest in members, having 233 active members; one-third of the chapters have more than 100 active members and only five of them fall below an active membership of 50. These five are all located in institutions of relatively restricted numbers and undoubtedly exercise in them proportionate influence despite their absolute inferiority of numbers to chapters in much larger institutions.

Last year it was noted that Chicago, Indiana, Syracuse, Wisconsin, Minnesota, and Missouri had abandoned the practice of electing undergraduates to the membership of the society. According to the reports of the chapters this year, Colorado has joined the number.

The District of Columbia chapter elects no new members whatever. Although all of the chapters just mentioned have not added to the number of undergraduate members, that total still shows an increase of 34 in this year's table as compared with the figures for last year. On the other hand, the total of graduate elections has been decreased by 13. It appears not improbable that this is an indication of the influence of the war which is bound to be conspicuously felt in the organization this year and in the near future. The number of graduate students among the men especially has been so distinctly reduced by the patriotic response of those students to the call of the country that the numbers eligible for election have fallen to a lower figure than for many years.

Sigma Xi certainly faces a new period in its history. It may not, indeed it must not, stand still, but it cannot hope to add largely to its membership until the solution of the world problems at issue in the present conflict permits a larger number of men to turn their attention to productive scholarship.

Elections from the faculty show an increase of 27 over last year. There are also 28 more alumni members than shown by the record of a year ago. The latter figure is not very significant, because alumni members are elected in smaller numbers and usually periodically so that when some chapter located in a large institution revises its list, the total from this grade is likely to be markedly increased at a given moment. This apparently sudden increase is in fact but the natural growth that extends over a number of years.

MEMBERSHIP RECORDS

A year ago the Executive Committee instructed the secretary to send out a request to each chapter asking that the card index of members kept in the secretary's office be brought up to date. As noted last year, this request received the hearty approval of the different chapters. The response was immediate and generous and even chapters which were unable to respond at once expressed their desire to meet the request at an early date in the future. Plans formulated at that time have not been fully carried out during this year. Some failures to meet promises are due to changes in chapter officers and the dropping of work by men who have been called to take up essential duties for the nation. As a result the confusion in the work of the different chapters is more than ordinarily great.

It is hoped that the chapters which have not yet furnished the necessary information may be able soon to bring their records up to date. In spite of these difficulties the general index of the society has made marked progress. The following summary will indicate the extent to which each chapter has coöperated in furnishing data for the index.

- 1 Cornell: Membership cards filed for elections through 1917; records complete and in good shape.
- 2 Rensselaer: Not all cards for 1907-1908 have been received; no cards at all after 1908.
- 3 Union: Cards filed in index include 1917 and previous elections.
- 4 Kansas: Cards filed in index include 1916 and previous elections.
- 5 Yale: Cards sent in include 1908 and previous elections.
- 6 Minnesota: Cards filed for elections up to August 16, 1916; only two cards sent in for 1917.
- 7 Nebraska: No cards in index for elections after 1908.
- 8 Ohio State: Cards filed in index include 1917 and previous elections.
- 9 Pennsylvania: Cards received include elections for 1916 and previously.
- 10 Brown: Last cards received cover elections for year 1915.
- 11 Iowa: No cards received for elections after 1908.
- 12 Stanford: No cards received for 1913 elections; cards sent for 1914, 1915, and 1916 elections.
- 13 California: Cards complete to September 1, 1916.
- 14 Columbia: Last cards received were for 1907 elections.
- 15 Chicago: No cards for 1905, 1906, 1907; cards sent in for elections of 1908 and through 1916.
- 16 Michigan: Last cards received were for year 1913.
- 17 Illinois: Cards complete and filed up to 1915.
- 18 Case: Last cards received were for 1908 elections.
- 19 Indiana: No cards for 1912, 1913, 1914, 1915. Cards received for 1916 elections.
- 20 Missouri: Cards sent in through 1917.
- 21 Colorado: Last cards received were for 1916.
- 22 Northwestern: Last cards received were for elections of 1917.
- 23 Syracuse: No cards for 1909, 1910, 1911; otherwise cards complete through 1916.

- 24 Wisconsin: Cards received through 1911 elections.
- 25 University of Washington: Cards received through 1916.
- 26 Worcester: No cards for 1912, 1913, 1914, 1915, or 1916; those for 1917 received.
- 27 Purdue: Cards last received were for 1916 elections.
- 28 Washington University: Cards received include 1917 elections.
- 29 District of Columbia; Cards received include 1915 elections.
- 30 Texas: Cards received include 1916 elections.

It would be an advantage to the chapters as well as to the Society in general if these records could be put at once on the official index cards which are furnished by the Society gratis in case a duplicate set is made for the general index. For the benefit of those who have not aided thus far in this work may I call attention to the fact that the constitution provides for four classes of members and only four such. Furthermore, if an individual has been elected by a chapter on a certain basis, i. e., under the specifications set down for the election of graduate students, that person should be listed continuously as a graduate member. On the other hand, if he transfers to another chapter, by virtue of his election as a faculty member in the institution where that chapter is located, he should be classified for the purpose of their report among the faculty members. A moment's consideration will show that the records would become badly tangled if we endeavored to shift individuals from one class to another as often as they might be changed from an individual position to another in a given institution.

I cannot close this presentation of the work done on the society records without calling attention to the especially perfect records which are in possession of two of our oldest chapters, viz., Cornell and Pennsylvania. They have reported fully and clearly concerning election of every member and have been able to bring the membership roll of the chapter up to date without difficulty.

It may interest and very likely surprise some members of the Society to learn that so far as I know there are few chapters which are in shape to speak absolutely with regard to the elections they have made to membership in Sigma Xi. In some chapters the records do not permit of reaching more than an approximate conclusion as to the different elections which the chapters have carried out, and the secretary's office is constantly in receipt of correspondence indicating the positive belief of individuals that they have been received into the Society when the individual chapter record does not

show evidence of the fact. Sufficient collateral evidence has been furnished in many instances to show that the statement of the individual is correct and that in some way or other the record is at fault. The only way in which this can possibly be obviated is to have a regular and systematic publication of elections practically at the time at which they are made. The executive committee has recommended strongly that the chapters should take especial care to make such publication and it hopes that despite the slight extra labor involved the secretaries may be willing to do so promptly.

REPORT OF THE TREASURER OF SIGMA XI FOR THE YEAR 1917

On March 5, 1917, in accordance with the instructions of the preceding annual convention, the treasurer issued a call to all the chapters for the annual dues of fifty cents per active member. The dues of all the chapters except three have been paid.

RECEIPTS

1917	Chapter	Assessment	Amount
Jan. 1	Balance		\$715.66
Jan. 6	Purdue	1917	29.00
Jan. 27	District of Columbia	{ 1915 1916	17.00 60.00
Mar. 5	Missouri	1917	37.00
Mar. 9	Union	1917	11.50
Mar. 12	Yale	1917	49.00
Mar. 20	Iowa	1917	35.00
Mar. 20	Washington University	1917	24.50
Mar. 22	Chicago	1917	104.50
Mar. 23	Nebraska	1917	35.00
Mar. 30	Worcester	1917	19.50
Apr. 23	Kansas	1917	28.00
Apr. 27	Indiana	1917	23.00
May 5	Syracuse	1917	28.50
May 23	Cornell	1917	101.00
May 31	Northwestern	1917	36.00
June 4	Illinois	1917	100.00
June 7	Colorado	1917	28.00
June 8	Brown	1917	20.00
June 9	Columbia	1917	60.00
June 20	University of Texas	1917	17.50
July 9	University of Minnesota	1917	81.00
July 27	Ohio State	1917	45.50
Dec. 14	University of Pennsylvania	1917	63.50
Dec. 14	District of Columbia	1916	8.00
Dec. 14	District of Columbia	1917	61.00
Dec. 24	Case School	1917	8.50
Dec. 26	University of California	1917	39.00
Dec. 27	Leland Stanford	1917	17.50
Dec. 28	University of Washington	1917	25.00
Total			\$1,928.66
Expenses			1,585.42
Balance			\$ 343.24

REPORT OF THE SECRETARY

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EXPENDITURES

QUARTERLY, December, 1916	\$168.02
QUARTERLY, March, 1917	142.50
QUARTERLY, June, 1917	89.67
QUARTERLY, September, 1917	82.67
Paper for QUARTERLY	468.59
Secretary's Assistant	385.00
Travel Expenses of Executive Committee	214.21
Expenses of President's Office	15.96
Expenses of Treasurer's Office	7.00
Record Blanks	4.50
Letter Heads	4.00
Instruction Sheets	3.30

Total	\$1,585.42
Balance	343.24

Receipts	\$1,928.66
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GEO. B. PEGRAM,

Treasurer, Sigma Xi Society.

Audited and found correct

C. E. McCLUNG

EDWARD ELLERY

NOTES

I have been reading the article on the SIGMA XI QUARTERLY by Professor G. A. Miller which is published in the December number, and it leads me to write to express my view that the SIGMA XI QUARTERLY has filled a desirable place in keeping the older men in some touch with the organization. For my own individual part, I will say that I welcome the QUARTERLY, and always look it over for the purpose of seeing what is going on in the Society, and conceive that it is necessary for the members to keep in touch in some way if the Society is to serve its best ends. If this is to be accomplished, some publication does seem to be necessary.

D. C. J.

Dear President Stieglitz:

I am fully aware that there is no need for any comment from me regarding the Sigma Xi Convention in Pittsburgh, but I cannot refrain from expressing to you my great satisfaction at the way in which both the afternoon and evening sessions were conducted. I feel especially grateful to you for the change made at the dinner in substituting for the usual chapter reports the informal speeches by well-known scientific workers. I may be allowed to say that I hope you will follow this plan at the next dinner, and that all future presidents will adopt your procedure. I am sure that everyone feels that a marked advance has been made and is grateful to you for what you have done for the Society.

Cordially yours,

E. E.

CHAPTER OFFICERS

LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

CHAPTER	PRESIDENT	VICE-PRESIDENT	REC. SECRETARY	COR. SECRETARY	TREASURER
Cornell.....	N. H. Ogden.....	W. A. Riley.....	C. H. Berry.....	J. McMahon.....	O. A. Johannsen..
Kenselae.....	A. T. Lincoln.....	J. N. Laycock.....	E. M. Clark.....	E. F. Chillum.....	E. F. Chillum.....
Union.....	Howard Opdyke..	C. F. F. Garis....	Morland King.....	Morland King.....	Morland King.....
Kansas.....	C. H. Ashton.....	J. E. Todd.....	P. V. Farragher....	W. J. Baumgartner	F. W. Bruckmeller
Yale.....	W. K. Longley....	C. H. Mathewson..	C. O. Dunbar.....	R. H. Suttie.....	G. A. Baisell.....
Minnesota.....	M. E. Haggerty....	H. Downey.....	R. M. West.....	Ross Allen Baker..	B. L. Newkirk....
Nebraska.....	O. J. Ferguson.....	Geo. Barrowman..	Margaret Hannah..	H. H. Waite.....	N. A. Bengtson....
Ohio.....	Alan Estis Flowers	Clyde T. Morris..	O. K. Sweeney.....	H. H. Waite.....	C. L. Metcalf.....
Pennsylvania....	C. E. McClung....	H. H. Donaldson..	Stanley P. Shugert.	W. H. F. Addison..	J. Percy Moore....
Brown.....	A. Def. Palmer....	A. E. Watson.....	J. A. Hall.....	P. H. Michel.....	C. H. Currier.....
Iowa.....	G. L. Houser.....	A. C. Trowbridge..	Dayton Stoner....	J. C. Clark.....	H. I. Dodge.....
Stanford.....	J. P. Smith.....	A. F. Rogers.....	T. C. Burnett.....	Edmund O'Neill....	J. C. Clark.....
California.....	C. B. Lipman.....	H. M. Evans.....	W. W. Stifter.....	Wm. Campbell.....	W. W. Stifter.....
Columbia.....	H. E. Hawkes.....	J. K. Finch.....	Arno B. Luckhardt.	H. A. Gleason.....	Arno B. Luckhardt
Chicago.....	James R. Angell..	Forest R. Moulton	H. A. Gleason.....	James B. Shaw....	H. H. Higbie.....
Michigan.....	E. C. Case.....	A. M. Barrett....	James Byrne Shaw..	W. Coppersmith....	H. J. Van Cleave..
Illinois.....	Harry S. Grindley	L. H. Provine....	Mason E. Hufford..	Mason E. Hufford..	C. E. Edmondson..
Case.....	D. T. Wilson.....	C. L. Eddy.....	Leroy S. Palmer....	W. C. Huntington..	Junius Henderson..
Indiana.....	R. R. Ramsey.....	W. L. Scott.....	Lewis H. Weld.....	W. L. Woodburn....	Joseph E. Pogue..
Missouri.....	C. H. Eckles.....	D. H. Dolley.....	George T. Hargitt..	George T. Hargitt..	B. W. Clark.....
Colorado.....	Jay W. Woodrow..	P. G. Worcester..	Chas. I. Corp.....	Chas. I. Corp.....	E. B. Fred.....
Northwestern....	S. I. Kornhauser..	William C. Baer..	H. L. Brakel.....	Miss E. I. Raitt....	G. S. Wilson.....
Wisconsin.....	C. H. Richardson..	L. H. Pennington	Francis J. Adam....	Farrington Daniels	Morton Mazus....
Washington State	Leon J. Cole.....	E. J. Saunders....	Nathaniel E. Loomis	Gilbert A. Young..	William H. Bates..
Worcester.....	Arthur W. Ewell..	William K. Hoy.....	C. H. Danforth....	M. W. Lyon, Jr....	LeRoy McMasters..
Purdue.....	Joseph C. Arthur..	G. T. Moore.....	W. T. Read.....	F. L. Whitney.....	D. R. Harper, 3rd.
Washington Univ.	A. S. Langsdorff..	C. L. Phelps.....			E. C. H. Bantel..
Dist. of Columbia	D. B. Casteel.....	Mary S. Young....			
Texas.....					

Including Chapter Reports received up to April 1, 1918

OFFICIAL ANNOUNCEMENTS

QUARTER CENTURY RECORD AND HISTORY

According to the instructions given by the General Convention, a copy will be sent prepaid on receipt of \$2.50.

SIGMA XI QUARTERLY

Title Page and Table of Contents for any Volume will be sent members or subscribers on request. A few extra copies of these volumes are to be had at the regular subscription price. Odd numbers will be sent members to fill gaps as long as the supply holds out.

PRINTED BLANKS

The General Convention has instructed the Secretary to keep for chapters a supply of printed blanks as enumerated below. According to instructions these are to be forwarded to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package. Please specify carefully whether for regular or associate members.

Index Cards, on the condition that a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis on demand.

Statistical Record Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis on demand.

Mailing Blanks, on which secretaries are requested to furnish once a year a correct list of mailing addresses of active members to be transmitted directly to the printer. Gratis on demand.

The mailing list should be sent to the General Secretary early in September and be valid for the academic year. The attention of secretaries is called to the fact that all changes of address or other correspondence concerning the QUARTERLY should be addressed to the General Secretary and not to the printing firm.